UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/625,534	07/24/2003	Tong Zhang	10018743	8212

22879	7590	05/13/2005

HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER
QIN, JIANCHUN

ART UNIT	PAPER NUMBER
2837	

DATE MAILED: 05/13/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

	Application No.	Applicant(s)	
Office Action Summary	10/625,534	ZHANG, TONG	
	Examiner	Art Unit	
	Jianchun Qin	2837	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**.   2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
   closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) _1-42_ is/are pending in the application.

   4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) _1-3,15-23,29-35 and 40-42_ is/are rejected.

7)☒ Claim(s) _4-14,24-28 and 36-39_ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _24 July 2003_ is/are: a)☒ accepted or b)☐ objected to by the Examiner.

   Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

   Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   a)☐ All   b)☐ Some * c)☐ None of:

   1.☐ Certified copies of the priority documents have been received.

   2.☐ Certified copies of the priority documents have been received in Application No. _____.

   3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
      application from the International Bureau (PCT Rule 17.2(a)).

   * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☒ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
   Paper No(s)/Mail Date _7/24/2003_.

4)☐ Interview Summary (PTO-413)
   Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

Specification

1.   Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

Specifically, it contains informality legal phrase "comprising".

Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent

granted on an application for patent by another filed in the United States before the invention by the
applicant for patent, except that an international application filed under the treaty defined in section
351(a) shall have the effects for purposes of this subsection of an application filed in the United States
only if the international application designated the United States and was published under Article 21(2)
of such treaty in the English language.

3.   Claims 1, 2, 10, 34 and 38 are rejected under 35 U.S.C. 102(e) as being

anticipated by Goodman et al. (U.S. Pub. No. 20020147728).

With respect to claim 1:

Goodman et al. teach a method for automatic classification of music, comprising:

receiving a music piece to be classified (sections 0057 and 0060); determining when the

received music piece comprises human singing (sections 0053, 0057 and 0061);

labeling the received music piece as singing music when the received music piece is

determined to comprise human singing (sections 0024, 0055 and 0061); and labeling

the received music piece as instrumental music when the received music piece is not

determined to comprise human singing (sections 0024, 0055 and 0061).

With respect to claim 2:

Goodman et al. also teach: the received music piece is comprised of at least

music sounds, and wherein the music piece can include one or more of audiovisual

signals and/or non-music sounds (section 0057, lines 5-7).

With respect to claim 34:

Goodman et al. teach a computer readable medium encoded with software for

automatically classifying a music piece (see Abstract), wherein the software is provided

for determining when a music piece comprises human singing (sections 0053, 0057 and

0061); labeling the music piece as singing music when the music piece is determined to

comprise human singing (sections 0024, 0055 and 0061); and labeling the music piece

as instrumental music when the music piece is not determined to comprise human

singing (sections 0024, 0055 and 0061).

With respect to claims 10 and 38:

Claims 10 and 38 recite an intended use of the method and system for

classification of music taught by Goodman et al. It has been held that a recitation of the

intended use of the claimed invention must result in a structural difference between the

claimed invention and the prior art in order to patentably distinguish the claimed

invention from the prior art. If the prior art structure is capable of performing the

intended use, then it meets the claim. In a claim drawn to a process of making, the

intended use must result in a manipulative difference as compared to the prior art. See

In re Casey, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA

1963).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claims 3 and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Goodman et al. (U.S. Pub. No. 20020147728) in view of Petkovic et al. (U.S. Pat. No.

6185527).

Goodman et al. teach a method and computer software for classification of music that includes the subject matter discussed above in accordance with claims 1 and 34. Goodman et al. do not mention expressly: the presence of human singing on the received music piece is determined by analyzing a spectrogram of the received music piece.

Petkovic et al. disclose a method and system for classification of music, and teach that: the presence of human singing on a music piece is determined by analyzing a spectrogram of the music piece (col. 11, lines 23-30).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Petkovic et al. in the invention of Goodman et al. in order to classify a music piece based on respective audio events associated with the spectral energy concentration of a portion of the audio signal (Petkovic et al., col. 4, lines 33-45, lines 50-52 and col. 5, lines 28-33).

6.   Claims 15-22, 27, 29-33 and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman et al. (U.S. Pub. No. 20020147728) in view of Kanevsky et al. (U.S. Pat. No. 6434520).

With respect to claims 15-18 and 40-42:

Goodman et al. teach a method and computer software for classification of music that includes the subject matter discussed above in accordance with claims 1 and 34. Goodman et al. further teach, regarding claim 17, the user selects a hierarchical structure of categories for controlling the classification of the music piece (section 0063).

Goodman et al. do not mention expressly: regarding claims 15 and 40, the labeled music piece is written into a library of classified music pieces; regarding claims 16 and 41, the labeling and/or the writing of the labeled music piece is controlled by parameters selected by a user; and regarding claims 18 and 42, the labeled music piece is written into a hierarchical database according to the structure selected by the user and wherein the labeled music pieces in the hierarchical database can be browsed according to the hierarchy.

Kanevsky et al. disclose a system and method for indexing and querying audio archives, and teach the step and means of: when a music piece satisfies at least one selected category, writing the labeled music piece into a library of classified music pieces (col. 1, lines 54-56; col. 7, lines 21-39 and col. 8, lines 34-36); the labeling and/or the writing of the labeled music piece is controlled by parameters selected by a user (col. 7, lines 45-59); and the labeled music piece is written into a hierarchical database according to the structure selected by the user (col. 7, lines 45-67) and wherein the labeled music pieces in the hierarchical database can be browsed according to the hierarchy (col. 9, lines 34-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the invention of Goodman et al. to obtain a library of classified music piece for the purpose of efficient sorting and storing music pieces in their archives and facilitating subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

With respect to independent claim 19:

Goodman et al. teach a method for classification of music (see Abstract), comprising: selecting parameters for controlling the classification of a music piece, wherein the selected parameters establish a hierarchy of categories for classifying the music piece (section 0024, 0049, 0053 and 0060); determining, in a hierarchical order and for each selected category, when the music piece satisfies the category (section 0024, 0049, 0053 and 0060); labeling the music piece with each selected category satisfied by the music piece (section 0024, 0049, 0053 and 0060).

Goodman et al. do not mention expressly: when the music piece satisfies at least one selected category, writing the labeled music piece into a library according to a hierarchy of the categories satisfied by the music piece.

Kanevsky et al. disclose a system and method for indexing and querying audio archives, and teach the step and means of, when a music piece satisfies at least one selected category, writing the labeled music piece into a library according to a hierarchy of the categories satisfied by the music piece (col. 1, lines 54-56; col. 7, lines 21-39 and col. 8, lines 34-36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the invention of Goodman et al. to obtain the invention as specified in claim 19 in order to efficiently sort and store music pieces in their archives and to facilitate subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

With respect to claims 20 and 21:

Goodman et al. teach a method for classification of music that includes the subject matter discussed above in accordance with claim 19. Goodman et al. further teach, the categories include instrumental, singing music, symphony, a specific band, specific instrument music, other harmonic music, chorus, and vocal solo (section 0057).

Goodman et al. do not mention expressly: selecting parameters for subsequent browsing of the library for desired music pieces.

Kanevsky et al. further teach: selecting parameters for subsequent browsing of the library for desired music pieces (col. 9, lines 34-40).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the invention of Goodman et al. in order to efficiently sort and store music pieces in their archives and to facilitate subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

With respect to independent claims 22 and 31:

Goodman et al. teach a computer-based system for automatic classification of music (see Abstract), comprising: a computer configured to determine when the received music piece comprises human singing (sections 0053, 0057 and 0061); label the received music piece as singing music when the received music piece is determined to comprise human singing (sections 0024, 0055 and 0061); label the received music piece as instrumental music when the received music piece is not determined to comprise human singing (sections 0024, 0055 and 0061).

Goodman et al. do not mention expressly: a device configured to receive a music piece to be classified; write the labeled music piece into a library of classified music pieces.

Kanevsky et al. teach: a device configured to receive a music piece to be classified (Fig. 2A, #200); and write the labeled music piece into a library of classified music pieces (Fig. 2B, #213; col. 8, lines 34-36).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the invention of Goodman et al. to obtain a library of classified music pieces for the purpose of efficiently sorting and storing music pieces in their archives to facilitate subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

With respect to claim 27:

Claim 27 recites an intended use of the method and system for classification of music taught by Goodman et al. It has been held that a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963).

With respect to claims 29, 30, 32 and 33:

Goodman et al. teach a method and system for classification of music that includes the subject matter discussed above in accordance with claims 22 and 31. Goodman et al. further teach: regarding claim 30, an interface configured to select parameters for controlling the classification of the music (section 0063); regarding claims 32 and 33, means for labeling the classified music piece as a particular category of music (sections 0024, 0055 and 0061), and means for selecting control parameters to control, adjust, and/or customize the classifying of the music piece (section 0063).

Goodman et al. do not mention expressly: regarding claim 29, the labeling and/or the writing of the labeled music piece is controlled by parameters selected by a user.

Kanevsky et al. further teach that the labeling and/or the writing of the labeled music piece is controlled by parameters selected by a user (col. 7, lines 45-59).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include the teaching of Kanevsky et al. in the invention of Goodman et al. in order to efficiently sort and store music pieces in their archives and to facilitate subsequent retrieval of desired information (Kanevsky et al., col. 1, lines 28-39).

7.   Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Goodman et al. (U.S. Pub. No. 20020147728) in view of Kanevsky et al. (U.S. Pat. No. 6434520), as applied to claim 22 above, and further in view of Petkovic et al. (U.S. Pat. No. 6185527).

Goodman et al. and Kanevsky et al. teach a method for classification of music that includes the subject matter discussed above.

The combination of Goodman et al. and Kanevsky et al. does not mention

expressly: the presence of human singing on the received music piece is determined by

analyzing a spectrogram of the received music piece.

Petkovic et al. disclose a method and system for classification of music, and

teach that: the presence of human singing on a music piece is determined by analyzing

a spectrogram of the music piece (col. 11, lines 23-30).

It would have been obvious to one having ordinary skill in the art at the time the

invention was made to include the teaching of Petkovic et al. in the combination of

Goodman et al. and Kanevsky et al. in order to classify a music piece based on

respective audio events associated with the spectral energy concentration of a portion

of the audio signal (Petkovic et al., col. 4, lines 33-45, lines 50-52 and col. 5, lines 28-

33).

Allowable Subject Matter

8.   Claims 4-9, 11-14, 24-26, 28, 36, 37 and 39 are objected to as being dependent

upon a rejected base claim, but would be allowable if rewritten in independent form

including all of the limitations of the base claim and any intervening claims.

Reasons for Allowance

9.   The following is an examiner's statement of reasons for allowance:

The primary reason for the allowance of claims 4 and 24 is the inclusion of the

limitation of classifying the labeled singing music piece as either chorus music or solo

music, based on frequency vibrations in the singing music piece. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claims 5-9, 25, 26, 36 and 37 is the inclusion of the limitation of classifying the labeled singing music piece as either chorus music or solo music, based on spectral peak tracks in the singing music piece. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claim 11 is the inclusion of the limitation that the symphony features include repetition, contrast, and variation of music signal or energy over time; sonata-allegro form; binary form; rondo form; regularities in movements; and alternating high and low volume intervals. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claim 12 is the inclusion of the limitation of comparing the symphony music piece against one or more music segments exemplary of a specific band, wherein the symphony music piece is labeled as a specific band music piece if the symphony music piece matches at least one exemplary music segment. It is this limitation found in each of the claims, as it is claimed in the

combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

The primary reason for the allowance of claims 13 and 14 is the inclusion of the limitation of: when the instrumental music piece has not been labeled as symphony, comprising: segmenting the instrumental music piece into notes by detecting note onsets; detecting harmonic partials for each segmented note, wherein if note onsets cannot be detected in most notes of the music piece and/or harmonic partials cannot be detected in most notes of the music piece, then labeling the instrumental music piece as other instrumental music. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.

The primary reason for the allowance of claims 28 and 39 is the inclusion of the limitation that the labeled instrumental music piece is analyzed for occurrences of features indicative of symphonies, and wherein if at least one symphony feature is detected in the instrumental music piece, the instrumental music piece is labeled as symphony. It is this limitation found in each of the claims, as it is claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes these claims allowable over the prior art.
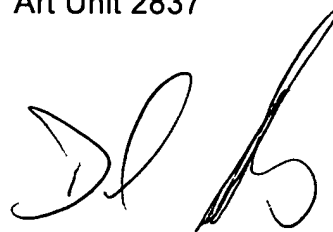
Contact Information

10.   Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jianchun Qin whose telephone number is (571) 272-5981. The examiner can normally be reached on 7am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Martin can be reached on (571) 272-2107. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Jianchun Qin
Examiner
Art Unit 2837

JQ
May 10, 2005

DAVID MARTIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800